

M25 motorway

The **M25** or **London Orbital Motorway** is a major road encircling almost all of Greater London. The 117-mile (188-kilometre) motorway is one of the most important roads in England and one of the busiest. Margaret Thatcher opened the final section in 1986, making the M25 the longest ring road in Europe. The Dartford Crossing (A282 road) is part of the orbital route but is not part of the motorway.

In the 1944 *Greater London Plan*, Patrick Abercrombie proposed an orbital motorway around London. In the early 1960s, this had evolved into the London Ringways project. By 1966, planning had started on two projects, Ringway 3 to the north and Ringway 4 to the south. By the time the first sections opened in 1975, it was decided the ringways would be combined into a single orbital motorway. The M25 was one of the first motorway projects to consider environmental concerns and almost 40 public inquiries took place. The road was built as planned despite some protests that included the section over the North Downs and around Epping Forest which required an extension of the Bell Common Tunnel.

Although the M25 was popular during construction, it quickly became apparent that there was insufficient traffic capacity. Because of the public inquiries, several junctions merely served local roads where office and retail developments were built, attracting even more traffic onto the M25 than it was designed for. The congestion has led to traffic management schemes that include variable speed limit and smart motorway. Since opening, the M25 has been progressively widened, particularly near Heathrow Airport.

In some cases, such as the Communications Act 2003, it is used as a de facto reference to Greater London.

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M25

London Orbital Motorway



Junction 13 looking south

Route information

Part of E15 E 15 and E30 E 30^[1]

Maintained by Connect Plus (contracted to Highways England)

Length 117 mi (188 km)

Existed 1975–present

History Opened: 1975

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Description

Route



Four-level stack where the M25 meets the M23 (junction 7)

The M25 almost completely encircles Greater London and passes briefly through it to the east. Junctions 1A–5 are in Kent, 6–14 are in Surrey, 15–16 are in Buckinghamshire, 17–25 are in Hertfordshire, and 26–31 are in Essex. Policing of the road is carried out by an integrated group made up of the Metropolitan, Thames Valley, Essex, Kent, Hertfordshire and Surrey forces.^[2] Primary destinations signed ahead on the motorway include the Dartford Crossing, Sevenoaks, Gatwick Airport, Heathrow Airport, Watford, Stansted Airport and Brentwood.^[3]

To the east of London the two ends of the M25 are joined to complete a loop by the non-motorway A282 Dartford Crossing of the River Thames between Thurrock and Dartford. The crossing consists of twin two-lane tunnels and the four-lane QE2 (Queen Elizabeth II) bridge.^{[4][5]} with a main span of 450 metres (1,480 ft).^[6] Passage across the bridge or through the tunnels is subject to a charge between 6 am and 10 pm, its level depending on the kind of vehicle. The road is not under motorway regulations so that other traffic can cross the Thames east of the Woolwich Ferry;^[a] the only crossing further to the east is a passenger ferry between Gravesend, Kent, and Tilbury, Essex.^[8]

Completed: 1986
Major junctions
Orbital around London (in conjunction with the A282)
South end Dartford (Dartford Crossing southern approach)
<div> <div>3</div> <div> M 20</div> <div>J3 → M20 motorway</div> </div> <div> <div>5</div> <div> M 26</div> <div>J5 → M26 motorway</div> </div> <div> <div>7</div> <div> M 23</div> <div>J7 → M23 motorway</div> </div> <div> <div>12</div> <div> M 3</div> <div>J12 → M3 motorway</div> </div> <div> <div>15</div> <div> M 4</div> <div>J15 → M4 motorway</div> </div> <div> <div>16</div> <div> M 40</div> <div>J16 → M40 motorway</div> </div> <div> <div>21</div> <div> M 1</div> <div>J21 → M1 motorway</div> </div> <div> <div>23</div> <div> A 1 (M)</div> <div>J23 → A1(M) motorway</div> </div> <div> <div>27</div> <div> M 11</div> <div>J27 → M11 motorway</div> </div>
North end Thurrock (Dartford Crossing northern approach)
Location
Counties Kent , Surrey , Berkshire , Greater London , Buckinghamshire , Hertfordshire , Essex
Primary destinations London <div>Dartford Crossing<div>Sevenoaks<div>Gatwick Airport<div>Heathrow Airport<div>Watford<div>Stansted Airport<div>Brentwood</div></div></div></div></div></div></div>
Road network
Roads in the United Kingdom <div>Motorways · A and B road zones</div>
← M 23 M23 M26 M 26 →

At Junction 5, the clockwise carriageway of the M25 is routed off the main north–south dual carriageway onto the main east–west dual carriageway with the main north–south carriageway becoming the A21. In the opposite direction, to the east of the point where the M25 diverges from the main east–west carriageway, that carriageway becomes the M26 motorway.^[9] From here to Junction 8, the M25 follows the edge of the North Downs close to several historic buildings such as Chevening, Titsey Place, Hever Castle and Chartwell.^{[10][11]} The interchange with the M23 motorway near Reigate is a four-level stack; one of only a few examples in Britain.^[12] Past this, the M25 runs close to the Surrey Hills AONB.^[10]

To the west, the M25 passes close to the edge of Heathrow, and within sight of Windsor Castle.^[13] North of this, it crosses the Chiltern Main Line under the Chalfont Viaduct, a 19th-century railway bridge. Red kites can often be seen overhead to the north of this, up to Junction 21. The northern section of the M25 passes close to All Saints Pastoral Centre near London Colney, Waltham Abbey and Copped Hall.^{[10][11]} This section also features two cut-and-cover tunnels, including the Bell Common Tunnel.^[11] The north-eastern section of the motorway passes close to North Ockendon, the only settlement of Greater London situated outside the M25.^[14] It then runs close to the Rainham Marshes Nature Reserve before reaching the northern end of the Dartford Crossing.^[10]

In 2004, following an opinion poll, the London Assembly proposed aligning the Greater London boundary with the M25.^[b] "Inside the M25" and "outside/beyond the M25" are colloquial, looser alternatives to "Greater London" sometimes used in haulage. The Communications Act 2003 explicitly uses the M25 as the boundary in requiring a proportion of television programmes to be made outside the London area; it states a requirement of "a suitable proportion of the programmes made in the United Kingdom" to be made "in the United Kingdom outside the M25 area", defined in Section 362 as "the area the outer boundary of which is represented by the London Orbital Motorway (M25)".^{[16][17]}

Sections of the M25 form part of two long-distance E-roads, designated by the United Nations Economic Commission for Europe. The E15, which runs from Inverness to Algeciras,^[18] follows the M25 and A282 clockwise from the A1(M) at junction 23 to the M20 at junction 3;^[1] while the E30 Cork to Omsk route runs from the M4 at junction 15, clockwise to the A12 at junction 28.^[1] The United Kingdom is formally part of the E-roads network but, unlike in other countries, these routes are not marked on any road signs.^[19]

Features



Near Heathrow Airport, the M25 is six lanes wide in each direction.

The M25 was originally built mostly as a dual three-lane motorway.^[20] Much of this has since been widened to dual four lanes for almost half, to a dual five-lanes section between Junctions 12 and 14 and a dual six-lane section between Junctions 14 and 15. Further widening is in progress of minor sections with plans for smart motorways in many others.^[21]

Two motorway service areas are on the M25, and two others are directly accessible from it. Those on the M25 are Clacket Lane between Junctions 5 and 6 (in the south-east) and Cobham between Junctions 9 and 10 (in the south-west). Those directly accessible from it are South Mimms off Junction 23 (to the north of London) and Thurrock off Junction 31 (to the east of London).^{[22][23]}

As is common with other motorways, the M25 is equipped with emergency ("SOS") telephones. These connect to two Highways England operated control centres at Godstone (for Junctions 1 to 15 inclusive) and South Mimms (for 16–31). The Dartford Crossing has a dedicated control centre. There is an extensive

network of closed circuit television (CCTV) on the motorway so incidents can be easily identified and located. A number of 4×4 vehicles patrol the motorway, attempting to keep traffic moving where possible, and assisting the local police. They can act as a rolling roadblock when there are obstacles on the road.^[2]

When completed, the M25 only had street lighting for 65 miles (105 km) of its 117-mile (188 km) length.^[24] Originally, low pressure sodium (SOX) lighting was the most prominent technology used, but this has been gradually replaced with high-pressure sodium (SON) lighting. As of 2015 the motorway has more than 10,000 streetlights.^[25] The M25 has a number of pollution control valves along its length, which can shut off drainage in the event of a chemical or fuel spill.^[25]

History

Plans



Map of Ringways 3 & 4 showing sections combined to form the M25

The idea of a general bypass around London was first proposed early in the 20th century. An outer orbital route around the capital had been suggested in 1913, and was re-examined as a motorway route in Sir Charles Bressey's and Sir Edwin Lutyens' *The Highway Development Survey, 1937*.^[26] Sir Patrick Abercrombie's *County of London Plan, 1943* and *Greater London Plan, 1944* proposed a series of five roads encircling the capital.^{[27][28]} The northern sections of the M25 follow a similar route to the Outer London Defence Ring, a concentric series of anti-tank defences and pillboxes designed to slow down a potential German invasion of the capital during World War II.^[29] This was marked as the D Ring on Abercrombie's plans. Following the war, 11 separate county councils told the Ministry of Transport that an orbital route was "first priority" for London.^[30]

Plans stalled because the route was planned to pass through several urban areas, which attracted criticism. The original D Ring through north-west London was intended to be a simple upgrade of streets. In 1951, Middlesex County Council planned a route for the orbital road through the county, passing through Eastcote and west of Bushey, connecting with the proposed M1 motorway, but it was rejected by the Ministry two years later. An alternative route via Harrow and Ealing was proposed, but this was abandoned after the council revealed the extent of property demolition required.^[30]

In 1964, the London County Council announced the London Ringways plan, to consist of four concentric motorway rings around London.^[31] The following year, the transport minister Barbara Castle announced that the D Ring would be essential to build. The component parts of what became the M25 came from Ringway 3 / M16 motorway in the north and Ringway 4 in the south.^[30]

The Ringways plan was controversial owing to the destruction required for the inner two ring roads, (Ringway 1 and Ringway 2). Parts of Ringway 1 were constructed (including the West Cross Route), despite stiff opposition, before the overall plan was postponed in February 1972. In April 1973, the Greater London Council elections resulted in a Labour Party victory; the party then formally announced the cancellation of the Ringways running inside Greater London.^[32] This did not affect the routes that would become the M25, because they were planned as central government projects from the outset.^[33]

Construction

There was no individual public inquiry into the M25 as a whole.^[34] Each section was presented to planning authorities in its own right and was individually justified, with 39 separate public inquiries relating to sections of the route. The need for the ministry to negotiate with local councils meant that more junctions with local traffic were built than originally proposed.^[35] A report in 1981 showed that the M25 had the potential to attract office and retail development along its route, negating the proposed traffic improvements and making Central London a less desirable place to work.^[36] None of the motorway was prevented from being built by objections at the public inquiries.^[37] However, as a consequence of the backlash against the Ringways, and criticism at the public inquiries, the motorway was built with environmental concerns in mind. New features included additional earth mounds, cuttings and fences that reduced noise, and over two million trees and shrubs to hide the view of the road.^[38]



View north from Higher Denham Fire Station at Tatling End on the A40 in July 1984, with the Chiltern Main Line five-arch 1906 Chalfont Viaduct, originally built to straddle the River Misbourne

Construction of parts of the two outer ring roads, Ringways 3 and 4, began in 1973. The first section, between South Mimms and Potters Bar in Hertfordshire (Junctions 23 to 24) opened in September 1975.^{[39][40]} It was provisionally known as the M16 and was given the temporary general-purpose road designation A1178.^[41] A section of the North Orbital Road between Rickmansworth and Hunton Bridge was proposed in 1966, with detailed planning in 1971. The road was constructed to motorway standards and opened in October 1976. It eventually became part of the M25's route.^{[39][40]} The section to the south, from Heathrow Airport to Rickmansworth had five separate routes proposed when a public inquiry was launched in 1974. The Department of Transport sent out 15,000 questionnaires about the preferred route, with 5,000 replies. A route was fixed in 1978, with objections delaying the start of construction in 1982.^[37]

The southern section of what became the M25 through Surrey and Kent was first conceived to be an east–west road south of London to relieve the A25, and running parallel to it, with its eastern end following the route of what is now the M26. It was originally proposed as an all-purpose route, but was upgraded to motorway standard in 1966. It was the first section of the route announced as M25 from the beginning. The first section from Godstone to Reigate (Junctions 6 to 8) was first planned in 1966 and opened in February 1976.^{[39][40]} A section of Ringway 3 south of the river between Dartford and Swanley (Junctions 1 to 3) was constructed between May 1974 and April 1977.^[40]



Inside the Bell Common Tunnel near Epping

In 1975, following extensive opposition to some parts of Ringway 3 through Middlesex and South London, the transport minister John Gilbert announced that the north section of Ringway 3 already planned would be combined with the southern section of Ringway 4, forming a single orbital motorway to be known as the M25, and the M16 designation was dropped. This scheme required two additional sections to join what were two different schemes, from Swanley to Sevenoaks in the south-east and Hunton Bridge to Potters Bar in the north-west. The section of Ringway 3 west of South Mimms anti-clockwise around London to Swanley in Kent was cancelled.^[34]

The section from Potters Bar to the Dartford Tunnel was constructed in stages from June 1979 onwards, with the final section between Waltham Cross (Junction 25) to Theydon Garnon (Junction 27) opening in January 1984.^[40] This section, running through Epping Forest, attracted opposition and protests. In 1973, local residents had parked combine harvesters in Parliament Square in protest against the road, draped with large banners reading "Not Epping Likely". As a consequence of this, the Bell Common Tunnel that runs in this area is twice as long as originally proposed.^[42]

The most controversial section of the M25 was that between Swanley and Sevenoaks (Junctions 3 to 5) in Kent across the Darenth Valley, Badgers Mount and the North Downs. An 1800-member group named Defend Darenth Valley and the North Downs Action Group (DANDAG) argued that the link was unnecessary, it would damage an Area of Outstanding Natural Beauty and it would be primarily used by local traffic as a bypass for the old A21 road between Farnborough and Sevenoaks.^[43] After a lengthy inquiry process, chaired by George Dobry QC, the transport minister Kenneth Clarke announced the motorway would be built as proposed.^[44]

The section from the M40 motorway to the 1970s North Orbital Road construction (Junctions 16 to 17) opened in January 1985.^[43] The route under the Chalfont Viaduct meant the motorway was restricted to a width of three lanes in each direction.^[45]

The Prime Minister Margaret Thatcher officially opened the M25 on 29 October 1986, with a ceremony in the section between Junctions 22 to 23 (London Colney and South Mimms).^[14] To avoid the threat of road protesters, the ceremony was held a quarter of a mile from the nearest bridge.^[46] The total estimated cost of the motorway was around £1 billion. It required 2 million tonnes (2.2 million short tons) of concrete, 2.5 million tonnes (2.8 million short tons) of asphalt and involved the removal of 49 million cubic metres (1,700 million cubic feet) of spoil. Upon completion, it was the longest orbital motorway in the world at 117 miles (188 km).^{[43][c]} At the opening ceremony, Thatcher announced that 98 miles had been constructed while the Conservatives were in office, calling it "a splendid achievement for Britain".^[46] A 58-page brochure was published, commemorating the completion of the motorway.^[48]

Operational history

The M25 was initially popular with the public. In the 1987 general election, the Conservatives won in every constituency that the motorway passed through, in particular gaining Thurrock from Labour. Coach tours were organised for a trip around the new road. However, it quickly became apparent that the M25 suffered from chronic congestion. A report in *The Economist* said it "had taken 70 years to plan [the motorway], 12 to build it and just one to find it was inadequate". Thatcher rebuked the negative response, calling it "carping and criticism".^[49]

Traffic levels quickly exceeded the maximum design capacity. Two months before opening, the government admitted that the three-lane section between Junctions 11 and 13 was inadequate, and that it would have to be widened to four.^[49] In 1990 the Secretary of State for Transport announced plans to widen the whole of the M25 to four lanes.^[50] By 1993 the motorway, designed for a maximum of 88,000 vehicles per day, was carrying 200,000.^[51] At this time, the M25 carried 15% of UK motorway traffic and there were plans to add six lanes to the section from Junctions 12 to 15 as well as widening the rest of the motorway to four lanes.^[52]

In parts, particularly the western third, this plan went ahead, due to consistent congestion. Again, however, plans to widen further sections to eight lanes (four each way) were scaled back in 2009 in response to rising costs. The plans were reinstated in the agreed Highways Agency 2013–14 business plan.^[53]

In June 1992, the Department for Transport (DfT) announced a proposal to widen the section close to Heathrow Airport to fourteen lanes by way of three additional link roads.^[54] This attracted fierce opposition from road protesters opposing the Newbury Bypass and other schemes,^[55] but also from local authorities. Surrey County Council led a formal objection to the widening scheme.^[54] It was cancelled shortly



The M4/M25 motorway junction (junction 15), near Heathrow Airport

afterwards.^[56] In 1994, the Standing Advisory Committee on Trunk Road Appraisal published a report saying that "the M25 experience most probably does ... serve as an example of a case where roads generate traffic" and that further improvements to the motorway were counterproductive.^[54] In April 1995, the Transport Minister Brian Mawhinney announced that the Heathrow link roads would be scrapped.^[57]



The M25 motorway near Heathrow, showing a MIDAS installed gantry

In 1995 a contract was awarded to widen the section between Junctions 8 and 10 from six to eight lanes for a cost of £93.4 million,^[58] and a Motorway Incident Detection and Automatic Signalling (MIDAS) system was introduced to the M25 from Junction 10 to Junction 15 at a cost of £13.5m in 1995. This was then extended to Junction 16 at a cost of £11.7m in 2002. This consists of a distributed network of traffic and weather sensors, speed cameras and variable-speed signs that control traffic speeds with little human supervision, and has improved traffic flow slightly, reducing the amount of start-stop driving.^[59]

After Labour won the 1997 election, the road budget was cut from £6 billion to £1.4 billion.^[57] However, the DfT announced new proposals to widen the section between Junction 12 (M3) and Junction 15 (M4) to twelve lanes. At the Heathrow Terminal 5 public inquiry, a Highways Agency official said that the widening was needed to accommodate traffic to the proposed new terminal; however, the transport minister said that no such evidence had been given.^[60] Environmental groups objected to the decision to go ahead with a scheme that would create the widest motorways in the UK without holding a public inquiry.^[61] Friends of the Earth claimed the real reason for the widening was to support Terminal 5.^[57] The decision was again deferred. A ten-lane scheme was announced in 1998^[62] and the £148 million 'M25 Jct 12 to 15 Widening' contract was awarded to Balfour Beatty in 2003.^[63] The scheme was completed in 2005 as dual-five lanes between Junctions 12 and 14 and dual-six lanes from Junctions 14 to 15.^[64]

In 2007, Junction 25 (A10/Waltham Cross) was remodelled to increase capacity. The nearby Holmesdale Tunnel was widened to three lanes in an easterly direction, and an additional left-turn lane added from the A10 onto the motorway. The total cost was £75 million.^{[65][66]}

Work to widen the exit slip-roads in both directions at Junction 28 (A12 / A1023) was completed in 2008. It was designed to reduce the amount of traffic queueing on the slip roads at busy periods, particularly traffic from the clockwise M25 joining the northbound A12.^[67] In 2018, a new scheme was proposed as the junction had reached capacity at over 7,500 vehicles per hour. This would involve building a two-lane link road between the M25 and the A12. The work is expected to be completed around 2021/22.^[68]

Widening

In 2006, the Highways Agency proposed widening 63 miles (101 km) of the M25 from six to eight lanes, between Junctions 5 and 6, and 16 to 30, as part of a Design, Build, Finance and Operate (DBFO) project.^[69] A shortlist of contractors was announced in October 2006 for the project, which was expected to cost £4.5 billion.^[70] Contractors were asked to resubmit their bids in January 2008,^[71] and in June 2009 the new transport minister indicated that the cost had risen to £5.5 billion and the benefit to cost ratio had dropped considerably.^[72] In January 2009 the government announced that plans to widen the sections from Junctions 5 to 7 and 23 to 27



A control room for the M25 J5-7 smart motorway scheme

had been 'scrapped' and that hard shoulder running would be introduced instead. However, widening to four lanes was reinstated in the 2013–14 Highways Agency Business Plan.^{[21][73]}

In 2009, a £6.2 billion M25 DBFO private finance initiative contract^[74] was awarded to Connect Plus to widen the sections between Junctions 16 to 23 and 27 to 30, and maintain the M25 and the Dartford Crossing for a 30-year period.^[75]

Work to widen the section between Junctions 16 (M40) and 23 (A1(M)) to dual four lanes^[76] started in July 2009 at an estimated cost of £580 million.^[77] The Junction 16 to 21 (M1) section was completed by July 2011 and the Junction 21 to 23 by June 2012.^[78] Works to widen the Junctions 27 (M11) to 30 (A13) section to dual four lanes also started in July 2009. The Junction 27 to 28 (A12) section was completed in July 2010,^[79] and the Junction 28 to 29 (A127) in June 2011, and finally the Junction 29 to 30 (A13) section opened in May 2012.^[80]

Work to introduce smart motorway technology and permanent hard shoulder running on two sections of the M25 began in 2013. The first section between Junctions 5 (A21/M26) and 7 (M23) started construction in May 2013 with the scheme being completed and opened in April 2014.^[81] The second section, between Junctions 23 (A1/A1(M)) and 27 (M11), began construction in February 2013 and was completed and opened in November 2014.^[82]

In December 2016, Highways England completed the capacity project at Junction 30 (Thurrock) as part of the Thames Gateway Delivery Plan.^[83] The £100m scheme included widening the M25 to four lanes, adding additional link roads, and improvements to drainage.^[84] The plans to expand junction 10, where the M25 meets the A3, have resulted in concerns about the amount of woodland that would be required.^[85]

Traffic

The M25 is one of Europe's busiest motorways. In 2003, a maximum of 196,000 vehicles a day were recorded on the motorway just south of Heathrow between junctions 13 and 14.^[86] The stretch between Junctions 14 and 15 nearby consistently records the highest daily traffic counts on the British strategic road network, with the average flow in 2018 of 219,492 counts (lower than the record peak measured in 2014 of 262,842 counts).^[87]

Traffic on the M25 is monitored by Connect Plus Services on behalf of Highways England. The company operates a series of transportable CCTV cameras that can be easily moved into congestion hotspots. This allows operators to see a clear view of the motorway and what can be done to tackle individual areas of congestion.^[88] Prior to its liquidation, Carillion was subcontracted to manage traffic on the M25, delivering live alerts from body-worn cameras via 3G, 4G and Wi-Fi.^[89]

Since 1995, sections of the M25 have been equipped with variable speed limits. These purposefully slow traffic down in the event of congestion or an obstruction and help manage the traffic flow.^[90] The scheme was originally trialled between Junctions 10 and 16, and was made a permanent fixture in 1997.^[91]

The Dartford Crossing is the only fixed vehicle crossing of the Thames east of Greater London.^[92] It is also the busiest crossing in the United Kingdom, and consequently puts pressure on M25 traffic.^[93] Users of the crossing do not pay a toll, but rather a congestion charge; the signs at the crossing are the same deployed over the London congestion charge zone.^[94] In 2009 the Department for Transport published options for a new



The M25 between Junctions 7 (M23) and 6 (A22) near Redhill, Surrey. The signs are indicating an advisory reduced speed of 40 mph (64 km/h) due to congestion.

Lower Thames Crossing to add capacity to the Dartford Crossing or create a new road and crossing linking to the M2 and M20 motorways.^[95] Plans for this stalled, and were cancelled by the Mayor of London, Boris Johnson in 2013, to be replaced by the Gallions Reach Crossing. Initially a straight ferry replacement for the Woolwich Ferry, this was later changed to be a possible bridge or tunnel.^{[96][97]}

Incidents

On 11 December 1984, nine people died and ten were injured in a multiple-vehicle collision between junctions 5 and 6. Dense fog had descended suddenly, and 26 vehicles were involved.^[98]

On 16 December 1988, several vehicles were stolen and used as getaway for acts of murder and robbery, using the M25 to quickly move between targets. Three men, including Raphael Rowe were tried and sentenced to life imprisonment in 1990, but maintained their innocence. They became known as the M25 Three. Rowe studied journalism while in prison and following release became investigative journalist for the BBC.^[99]

In 1996, Kenneth Noye murdered Stephen Cameron in a road rage incident while stopped at traffic lights on an M25 junction. He was convicted in 2000 and sentenced to life imprisonment.^[100] He was released in June 2019.^{[101][102]}

In November 2014, during overnight roadworks, a 16-foot (4.9 m) piece of road surface near Junction 9 at Leatherhead failed to set correctly because of rain. This created a 1-foot (0.30 m) pothole in the road and caused a 12-mile (19 km) tailback. The Minister for Transport John Hayes criticised the work and the resulting traffic problems.^[103]

The M25 has had problems with animals or birds on the carriageway. In 2009, the Highways Agency reported that they were called out several times a week to remove a swan from the motorway around Junction 13.^[104] There have been several reported accidents resulting from horses running onto the main carriageway.^{[105][106][107]}

Racing

The orbital nature of the motorway, in common with racetracks, lent itself to unofficial, and illegal, motor racing. At the end of the 1980s, before the advent of speed enforcement devices, owners of supercars would meet at night at service stations such as South Mimms and conduct time trials.^[108] Times below 1 hour were achieved – an average speed of over 117 mph (188 km/h), which included coming to a halt at the Dartford Tunnel road user charge payment booths.^{[109][110]} The winner received champagne rather than money. The *Enfield Gazette* referred to an "M25 club", and posters appeared near the M25 advertising the "First London Cannonball Run".^[108] The racing had mostly disappeared by the end of the 1980s and could not be done after speed cameras were introduced on the M25.^[111]

Cultural references

The M25 and the Dartford Crossing are known for frequent traffic jams. This was noticed before the entire road had been completed; at the official opening ceremony Margaret Thatcher complained about "those who carp and criticise". The jams have inspired derogatory names, such as "Britain's Biggest Car Park"^[112] and songs (e.g., Chris Rea's "The Road to Hell").^[113] Nevertheless, coach tours around the M25 have continued to run into the 21st century.^[114]



The "Give Peas A Chance" graffiti on the Chalfont Viaduct, before its removal in 2018

The M25 plays a role in the comedy-fantasy novel *Good Omens*, as "evidence for the hidden hand of Satan in the affairs of Man".^[14] The demon character, Crowley, had manipulated the design of the M25 to resemble a Satanic sigil, and tried to ensure it would anger as many people as possible to drive them off the path of good.^{[115][116]} The lengthy series of public inquiries for motorways throughout the 1970s, particularly the M25, influenced the opening of *The Hitchhiker's Guide to the Galaxy*, where the Earth is destroyed to make way for a hyperspace bypass.^[117]

The M25 enjoyed a more positive reputation among ravers in the late 1980s, when this new orbital motorway became a popular route to the parties that took place around the outskirts of London.^[118] The use of the M25 for these raves inspired the name of the electronic duo

Orbital.^[14]

Iain Sinclair's 2002 book and film *London Orbital* is based on a year-long journey around the M25 on foot.^[120] A piece of graffiti on the Chalfont Viaduct, clearly visible from the M25 and reading "GIVE PEAS A CHANCE" (parodying John Lennon's "Give Peace A Chance") became popular with the public, attracting its own Facebook group.^{[121][122]} The message originally read "Peas", supposedly the tag of a London graffiti artist; the rest of the wording is reported to have referred to his frequent clashes with the law.^{[123][124]} In September 2018, after almost 20 years, the graffiti was vandalised and then removed and replaced with the message "give Helch a break".^[125] A spokesman for Network Rail sympathised with the requests to restore the "much-loved graffiti", but said they do not condone people putting their lives at risk by trespassing.^{[125][126]}

"The M25 is a form of social control to ensure disruptive elements in society are neutralised by keeping a significant proportion of them in continual motion."

Will Self^[119]

Junctions and services






Data from driver location signs provide carriageway identifier information.^[127] The numbers on the signs are kilometres from a point on the north side of the Dartford Crossing, while the letter is "A" for the clockwise carriageway and "B" for the anticlockwise. They are spaced every 500 metres (1,600 ft).^[25]

The M25 has been criticised for having too many junctions; 14 of them serve only local roads.^{[35][128]} In 2016, Edmund King, president of the Automobile Association, attributed congestion on the M25 to excessive junctions. This leads to "junction hoppers" who only use the motorway for a short distance before exiting; their difference in speed when entering and leaving the main carriageway causes a domino effect, resulting in all vehicles slowing down.^[129]

The M25 originally opened without any service areas. The first, at South Mimms, was opened by Margaret Thatcher in June 1987, a week before the election. Thatcher admired the practical and no-frills architecture of Charles Forte and praised him in her opening speech.^[130] The second, Clacket Lane, was opened by Robert Key, Minister for Roads and Traffic, on 21 July 1993.^[131] Construction was delayed as the remains of a Roman villa were found on the site, requiring archaeological research.^[132] The other service area between junctions is Cobham, which opened on 13 September 2012.^[23]

A282 (Dartford Crossing)					
miles	km ^{[127][d]}	Clockwise exits (A carriageway) ^[127]	Junction	Anti-clockwise exits (B carriageway)	Opening date ^[43]
0.0	0.0	Dartford Crossing South (Queen Elizabeth II Bridge) 	River Thames	Dartford Crossing North (Dartford Tunnels) 	November 1963 (west tunnel) May 1980 (east tunnel) October 1991 (bridge)
3.5	5.7	Swanscombe, Erith, Bluewater A206	J1A^[e]	Swanscombe, Erith A206	September 1986
4.7	7.5	Dartford A225	J1B	No Exit	September 1986
M25					
5.5	8.8	London (SE & C), Bexleyheath A2 Canterbury (M2) Ebbsfleet International  <i>Non Motorway Traffic</i>	J2	London (SE & C), Bexleyheath, Bluewater A2 Canterbury (M2) Dartford (A225) Ebbsfleet International 	September 1986 (northbound) April 1977 (southbound)
8.7	14.0	Dover, Channel Tunnel, Maidstone M20 London (SE), Swanley A20	J3	London (SE & C), Lewisham A20 Channel Tunnel, Maidstone M20	April 1977 (northbound) February 1986 (southbound)
12.2	19.6	Bromley A21 Orpington A224	J4	London (SE), Bromley A21 Orpington A224	February 1986
16.3 16.4	26.2 26.4	Sevenoaks, Hastings A21	J5	Dover, Channel Tunnel, Maidstone M26 (M20) Sevenoaks, Hastings A21	July 1980
21.0	33.8	Clacket Lane services	Services	Clacket Lane services	July 1993
25.8	41.6	Eastbourne, Godstone, Caterham A22 Redhill, Westerham (A25)	J6	Eastbourne, Godstone, Caterham A22 Westerham (A25)	November 1979 (eastbound) February 1976 (westbound)
28.6	46.0	Brighton, Crawley Gatwick  Croydon M23	J7	Croydon Brighton, Gatwick  M23	February 1976
31.9	51.4	Reigate, Sutton A217 Kingston (A240)	J8	Sutton, Reigate A217 Redhill (A25)	February 1976 (eastbound) October 1985 (westbound)
38.5 39.5	62.0 63.5	Leatherhead A243 Dorking (A24)	J9	Leatherhead A243 Dorking (A24)	October 1985
42.6 43.2	68.6 69.5	Cobham services	Services	Cobham services	September 2012
45.0	72.4	Portsmouth, Guildford, London (SW & C) A3	J10	London (SW), Kingston, Guildford, Portsmouth A3	October 1985 (eastbound) December 1983 (westbound)
49.8	80.2	Woking A320 Chertsey A317	J11	Chertsey A317 Woking A320	December 1983 (southbound)

					October 1980 (northbound)
52.1	83.8	<u>Basingstoke, Southampton</u> <u>Richmond</u> M3	J12	The SOUTH WEST, Southampton <u>London</u> (SW & C), <u>Richmond</u> M3	October 1980 (southbound) December 1976 (northbound)
55.2	88.8	<u>London</u> (W), <u>Hounslow</u> , <u>Staines</u> A30	J13	<u>London</u> (W), <u>Hounslow</u> , <u>Staines</u> A30	November 1981 (southbound) August 1982 (northbound)
57.0	91.8	Heathrow ✈️ (T 4, 5 & Cargo) <u>A3113</u>	J14	Heathrow ✈️ (T4, 5 and Cargo) <u>A3113</u>	August 1982 (southbound) September 1985 (northbound)
59.0	95.0	The WEST, <u>Reading</u> , <u>Slough</u> <u>London</u> (W & C), Heathrow ✈️ (T1, 2 & 3) M4	J15	<u>London</u> (W), Heathrow ✈️ (T1, 2 & 3) The WEST, <u>Slough</u> , <u>Reading</u> M4	September 1985
63.8	102.6	<u>Birmingham</u> , <u>Oxford</u> <u>Uxbridge</u> , <u>London</u> (W) M40	J16	<u>Uxbridge</u> , <u>London</u> (W & C) <u>Birmingham</u> , <u>Oxford</u> M40	September 1985 (southbound) January 1985 (northbound)
68.7	110.5	<u>Rickmansworth</u> , <u>Maple Cross</u> A412	J17	<u>Maple Cross</u> A412	January 1985 (southbound) February 1976 (northbound)
69.9	112.5	<u>Amersham</u> , <u>Chorleywood</u> A404	J18	<u>Amersham</u> , <u>Chorleywood</u> , <u>Rickmansworth</u> A404	February 1976
71.5	116.4	<u>Watford</u> A41	J19	No Exit	September 1976
73.5	118.2	<u>Hemel Hempstead</u> , <u>Aylesbury</u> A41	J20	<u>Hemel Hempstead</u> , <u>Aylesbury</u> , <u>Watford</u> A41	August 1986
76.3	122.8	The NORTH <u>Luton & Airport</u> ✈️ M1	J21	The NORTH <u>Luton & Airport</u> ✈️ M1	August 1986
76.9	123.7	(M1 South) <u>St Albans</u> , <u>London</u> (NW & C) A405	J21A	(M1 South) <u>St Albans</u> , <u>London</u> (NW & C), <u>Watford</u> A405	August 1986
80.6	129.7	<u>St Albans</u> A1081	J22	<u>St Albans</u> A1081	August 1986
83.3	134.0	<u>Hatfield</u> A1(M) <u>London</u> (N & C) A1 <u>Barnet</u> A1081 <i>South Mimms services</i>	J23	<u>London</u> (N & C) A1 <u>Barnet</u> A1081 <u>Hatfield</u> A1(M) <i>South Mimms services</i>	August 1986 (westbound) September 1975 (eastbound)
85.9	138.2	<u>Potters Bar</u> A111	J24	<u>Potters Bar</u> A111	September 1975 (westbound) June 1981 (eastbound)
91.4	147.1	<u>London</u> (N & C) <u>Enfield</u> , <u>Hertford</u> A10	J25	<u>London</u> (N & C) <u>Enfield</u> , <u>Hertford</u> A10	June 1981 (westbound) January 1984 (eastbound)
94.9	152.7	<u>Waltham Abbey</u> , <u>Loughton</u> A121	J26	<u>Waltham Abbey</u> , <u>Loughton</u> A121	January 1984
99.2	159.7	<u>Cambridge</u> , <u>Stansted</u> ✈️, <u>Harlow</u>	J27	<u>London</u> (NE & C) <u>Cambridge</u> , <u>Harlow</u> , <u>Stansted</u>	January 1984 (westbound)

		London (N & E) M11		 M11	April 1983 (eastbound)
107.1	172.4	Chelmsford, London (E & C), Romford A12 Brentwood A1023	J28	Chelmsford A12 Brentwood A1023	April 1983
109.9	176.8	Southend, Basildon A127	J29	London (E & C), Romford, Southend, Basildon A127	April 1983 (northbound) December 1982 (southbound)
115.2	185.4	Tilbury, Thurrock, Lakeside, London (E & C) A13 <i>Thurrock services</i>	J30	London (E & C), Tilbury, Thurrock, Lakeside A13 <i>Thurrock services</i> <i>Non Motorway Traffic</i>	December 1982
A282 (Dartford Crossing)					
115.9	186.6	No Exit	J31	Thurrock, Lakeside A1306 Purfleet (A1090) West Thurrock (A126) <i>Thurrock services</i>	December 1982
		Dartford Crossing South (Queen Elizabeth II Bridge) 	River Thames	Dartford Crossing North (Dartford Tunnels) 	November 1963 (west tunnel) May 1980 (east tunnel) October 1991 (bridge)
Notes <ul style="list-style-type: none"> Distances in kilometres and carriageway identifiers are obtained from driver location signs/location marker posts. Where a junction spans several hundred metres and the data is available, both the start and finish values for the junction are shown. 					
<div>  Incomplete access  Tolled </div> <div>1.000 mi = 1.609 km; 1.000 km = 0.621 mi</div>					

References

Notes

- Pedestrians and cyclists cannot directly use the Dartford Crossing, but a shuttle service is available for the latter.^[7]
- This move would be bound to be resisted by the communities affected, including Watford, Loughton and Epsom.^[15]
- Since the completion of the M25, the Berliner Ring has been completed to run at a slightly longer 196 km (122 mi)^[47]
- The table gives details of each junction, including the roads interchanged and the destinations that are signed from the motorway on the blue advance direction signs. Figures in kilometres are from the driver location signs; figures in miles are derived from them.
- Junctions 1A and 1B are part of the A282, though they use the M25's numbering scheme.^[133]

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External links

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